

REMARKS

Applicants' attorney thanks the Examiner for the courtesy of an Office Interview. Pursuant to those discussions and in response to the open Office Action, applicants have provided the present amendment.

Claim 17 was rejected under 35 U.S.C. § 101 for not reciting any steps involved in the process. This claim has now been canceled.

Independent claims 1, 13 and 18 have been amended to specify that at least 50% of bleaching of the substrate is effected by oxygen sourced from the atmospheric air. Support is found in the specification at page 68, lines 24-26. By this amendment, the claims exclude from bleaching all traditional peroxide sources to the extent of at least 50%. This amendment was submitted to better define the phrase "substantially devoid of peroxygen bleach or a peroxy-based or -generating bleach system". New claims 22, 23 and 24 specify that at least 90% of bleaching of the substrate is effected by oxygen sourced from the atmospheric air. Support is found in the specification at page 68, lines 24-26.

Still further, independent claims 1, 13 and 18 have been amended to note that bleaching of the substrate is by atmospheric oxygen without use of aldehydes. Support is found in the specification at page 4, lines 2-4. Some bleach compositions may contain very small amounts of aldehyde type preservatives or in the bleaching process generate quite small amounts of an

aldehyde. The amended claims are not intended to absolutely exclude trace aldehyde amounts; however, they do exclude aldehyde amounts in quantities sufficient to visibly bleach stains.

Claims 1-21 were rejected under 35 U.S.C. § 102(b) as anticipated by EP 909,809. Applicants traverse this rejection.

EP '809 was cited for disclosing pentadentate nitrogen containing ligands including the most preferred ligands (MeN₄Py) in bleaching systems. Bleaching with atmospheric oxygen was said to be inherent because EP '809 teaches the same bleach catalyst complex as that of the present claims.

Atmospheric bleaching in EP '809 is not inherent. At length the reference sets forth that the iron complexes are combined with hydrogen peroxide or peroxyacids. See page 5 (line 16) bridging to page 6 (line 32). All of the cloth bleaching examples employ more hydrogen peroxide and/or peroxyacetic acid than is necessary for complete bleaching of the test cloths. Oxygen sourced from atmospheric air competes extremely poorly with chemically sourced peroxides (e.g. hydrogen peroxide or peroxyacetic acid). Synthetically pre-formed peroxides are relatively unstable. They are the first oxygens to be utilized by any iron catalysts in an oxidation reaction. Not only is atmospheric air poorly soluble in the wash compositions but in contrast to the peroxides is relatively substantially inert. Anytime peroxides are present air stands no chance of successful competition. For this reason the Examiner's "inherency" argument is poorly taken.

EP '809 lists "molecular oxygen" as an alternative to the peroxide generating systems. See page 6 (lines 31-32). "Molecular oxygen" is not synonymous with atmospheric oxygen. The term "molecular oxygen" has been associated by those skilled in the art as derived from systems wherein an aldehyde and a radical initiator employs air to generate a reactive oxygen. During this conversion the aldehyde and radical initiator are consumed in relatively high amounts. Unlike those systems, the presently claimed direct use of atmospheric oxygen requires no intermediary molecule for conversion but rather is directly in contact with the catalyst. For all the foregoing reasons, EP '809 does not anticipate the claims.

Claim 18 includes the further unusual feature of a textile being bleaching subsequent to its removal from a liquid bleaching system and after having been dried. Atmospheric oxygen is the oxidant source for this unexpected and surprising result. Small amounts of catalyst that pass through the wash process remain on the textile after drying. The combination of those residual catalyst amounts and atmospheric oxygen accomplishes the continuous dry-forming bleaching process. EP '809 does not teach this feature of the present invention.

Claims 1, 4, 6, 9-13 and 17-20 were rejected under 35 U.S.C. § 102(b) as anticipated by WO 95/34628, WO 97/48787 or WO 97/38074. Applicants traverse this rejection.

Applicants' amendment of the independent claims now leaves no doubt that more than 50% of bleaching occurs through atmospheric oxygen. Any amounts of traditional peroxides must be present in molar quantities and are very substantially below any amount that could on any stoichiometric basis provide the oxidizing oxygens.

WO '628 requires the presence of hydrogen peroxide or peroxy acids in connection with bleaching by the iron complex. See the Abstract. These compositions are not in any way devoid of peroxygen bleach or peroxy-based or -generating bleach systems. There is no appreciation in this reference that chemically produced peroxides are no longer necessary with the claimed catalyst systems. WO '628 simply does not refer to at least 50% of bleaching coming from atmospheric oxygen. For this reason, there can be no anticipation.

WO '074 operates on "molecular oxygen". The system takes gaseous oxygen or air containing gaseous oxygen and combines this with an aldehyde and a free radical initiator. Without the aldehyde/initiator, there is no fixation of oxygen. Further, the system provides very poor performance. Applicants' independent claims now specify that the atmospheric oxygen bleaching occurs without use of aldehydes.

WO '787 employs bleach catalysts having poly-dentate ligands containing at least 6 heteroatoms. In the Examples, these complexes are combined with hydrogen peroxide to produce bleaching on test cloths. The

disclosure describes at length peroxy compounds needed in combination with the iron catalysts. See page 8 (line 14) bridging to page 11 (line 34).

Atmospheric oxygen bleaching is not inherent in this disclosure. An overkill amount of peroxide is used in all the Examples. Atmospheric oxygen is very much more stable than the peroxides and would not compete successfully with the latter.

The reference does mention "molecular oxygen" at page 11 (line 33) and in the Abstract. Those skilled in the art understand the term "molecular oxygen" as not being air that can directly combine with the iron catalysts. Those skilled in the art have exceedingly few templates that demonstrate bleach through air. The "molecular oxygen" to those skilled in the art could only be such systems as reported in WO '074. The limitations of those systems have been discussed, *vide supra*. "Molecular oxygen" is simply not identical to bleaching directly with air and a transition metal catalyst. Again, it is noted that the present claims explicitly exclude use of aldehydes as bleaching intermediate vehicles.

Based on all the foregoing considerations, the claims are not anticipated by these references.

Claims 5, 7 and 8 were rejected under 35 U.S.C. § 103(a) as unpatentable over WO '628, WO '787 and WO '074. Applicants traverse this rejection.

None of the PCT references teach or suggest that atmospheric oxygen could serve as the sole source of oxidation without undergoing any further chemical conversion (other than by a transition metal catalyst). While two of these references flirt with "molecular oxygen" there is no serious consideration given to atmospheric air. All the Examples utilize expensive peroxides. If the prior art had any reasonable expectation of atmospheric air being effective, it is hardly likely that so much effort and exemplification would have been expended upon the traditional peroxide sources as co-reactants with transition metal catalysts. For these reasons, those skilled in the art would not have arrived at the present invention through consideration of these references.

Claims 13-18 were rejected for obviousness-type double patenting over claims 1-16 of U.S. Patent 6,245,115.

Claims 1-12 and 19-21 were rejected for obviousness-type double patenting over claims 1-6 of U.S. Patent 6,242,409.

Claims 13-18 were provisionally rejected for obviousness-type double patenting over the pending claims of co-pending application S/N 09/649,668.

Claims 1-21 were provisionally rejected for obviousness-type double patenting over claims 1-38 of co-pending application S/N 09/540,598, claims 1-35 of S/N 09/650,135, claims 1-22 of S/N 09/796,141, claims 1-16 of S/N

09/795,810, claims 1-51 of S/N 09/539,756, claims 1-18 of S/N 09/796,210 and claims 1-35 of S/N 09/649,667.

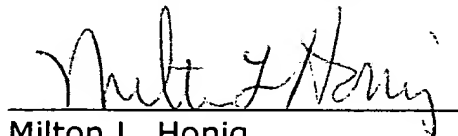
Further, claims 1-21 were provisionally rejected for obviousness-type double patenting over claims in co-pending application S/N 09/741,392, S/N 09/741,393, S/N 09/741,394 and S/N 09/741,395.

Applicant herewith provides a Terminal Disclaimer over all the aforementioned patents and pending patent applications.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version With Markings To Show Changes Made.**"

In view of the foregoing amendment and comments, applicants request the Examiner to reconsider the rejections and now allow the claims.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

Claim 17 has been canceled.

Claims 1, 13 and 18 have amended as follows:

1. (Amended) A liquid bleaching composition comprising an organic substance which forms a complex with a transition metal, the complex catalysing bleaching of a substrate by atmospheric oxygen without use of aldehydes, and a liquid carrier or solvent, wherein the composition allows at least 50% of any bleaching of the substrate to be effected by oxygen sourced from the air and is substantially devoid of peroxygen bleach or a peroxy-based or -generating bleach system.

13. (Amended) A method of bleaching a substrate comprising applying to the substrate a liquid bleaching composition that comprises an organic substance which forms a complex with a transition metal, the complex catalysing bleaching of the substrate by atmospheric oxygen without use of aldehydes, and a liquid carrier or solvent, wherein the composition allows at least 50% of any bleaching of the substrate to be effected by oxygen sourced from the air and is substantially devoid of peroxygen bleach or a peroxy-based or -generating bleach system.

18. (Amended) A method of treating a textile by contacting the textile with a liquid bleaching composition that comprises an organic substance which forms a complex with a transition metal, the complex catalysing bleaching by atmospheric oxygen without use of aldehydes, and a liquid carrier or solvent, wherein bleaching by the composition in a wash liquor is to at least 50% effected by oxygen sourced from the air and the composition is substantially devoid of peroxygen bleach or a peroxy-based or -generating bleach system, whereby the complex catalyses bleaching of the textile by atmospheric oxygen after the textile has been removed from the wash liquor and dried the treatment.

Please add new claims 22 and 23 as follows:

22. A liquid composition according to claim 1 wherein the composition allows at least 90% of any bleaching of the substrate to be effected by oxygen sourced from the air.

23. A method according to claim 13 wherein the composition allows at least 90% of any bleaching of the substrate to be effected by oxygen sourced from the air.

24. A method according to claim 18 wherein bleaching by the composition in the wash liquor is to at least 90% effected by oxygen sourced from the air.